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M 500.50: Current Mathematical Curricula

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M500: Current mathematics curricula

Spring, 2019

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Office Hours: I can meet anytime! Please use this link to schedule a meeting at a time that is convenient for you: www.fapeck.com/meeting. We can meet in-person if you are on campus, or by phone or video chat if you are off-campus.

who should learn mathematics?

what math should be learned?

why should it be learned?

when should it be learned?

how should it be learned?

About the course

In this course we will examine the historical trajectory of mathematics curricula in the US, and analyze the social forces that become intertwined with that trajectory. We will focus particular attention on recent history and current curricula, and we will examine the role of culture in the development of math curricula.

Guiding questions

For over 120 years, we have been grappling with (at least) five key questions in mathematics education:

1. *who* should learn mathematics?
2. *what* math should be learned?
3. *why* should it be learned?
4. *when* should it be learned?
5. *how* should it be learned?

These questions have driven the development of math curricula since the establishment of public schooling, and they animate current debates about the Common Core. We'll explore how various authors and committees have sought to answer these questions, and how those answers have changed across time.

Learning outcomes

Participants will become more-central participants in the community of math educators.

Most obviously, being a professional math educator involves the daily interactions that we have with students. However, being a professional also involves understanding the history of our profession and productively participating in the debates that animate current policy and practice. This course focuses on the latter aspect of professionalism. In particular, participants will:

1. Describe major eras in the history of the US mathematics curriculum and discuss the social forces that interacted with math curricula during these eras; take and support a position in some of the conflicts that have animated and continue to animate curricular policy.
2. Define culture in a way that does not reduce it to categories such as race, ethnicity, or socioeconomic status, nor to surface features such as food and festivals; make and support an argument regarding the role of culture in the school mathematics curriculum.

Tentative timeline

The course consists of seven, two-week modules, with a one-week introductory module. We may adjust the timeline below in response to ideas and issues that surface as we go through the course.

Schedule of modules

Module	Dates	Topic
Module 0	Thur Jan 10 – Sun Jan 20 (*)	Overview and ancient history
Module 1	Tue Jan 22 – Sun Feb 3	Precursors to the standards movement: Calls for reform and critiques
Module 2	Mon Feb 4 – Sun Feb 17	Precursors to the standards movement: Mathematicians, philosophers, and math educators
Module 3	Tue Feb 19 – Sun Mar 3	The NCTM standards & critiques
Module 4	Mon Mar 4 – Sun Mar 17	The lead-up to the Common Core: NCLB, the math wars, and international comparisons
Module 5	Mon Mar 18 – Sun Apr 7 (**)	The Common Core State Standards and critiques
Module 6	Mon Apr 8 – Sun Apr 21	The role of culture: What is culture and why does culture matter in mathematics?
Module 7	Mon Apr 22 – Fri May 3 (***)	Culturally relevant pedagogy, place-based curricula, math for social justice

(*) One-week introductory module. (**) Three weeks due to spring break. (***) This module includes finals week and ends on a Friday

Schedule *within* a module

In general, the first week of a module is used to complete readings and prepare initial discussion posts. The second week is used to engage in online discussion. Please allocate approximately 5-6 hours each week for the course. Use the following schedule to help you plan your time

Day	Primary activities	Approx. time commitment
Week one, Mon-Sun <i>Sunday of week one</i>	Complete all readings, complete one post on discussion board. <i>First post due on discussion board</i>	5-6 hours
Week two, Mon-Sun <i>Sunday of week two</i>	Engage in lively discussion on discussion board. Plan to post daily, or at least every-other-day <i>All posts due on discussion board</i>	5-6 hours

Assignments

Assignments and expectations are summarized below. You can learn more about each assignment in the “assignments and expectations” section of the course website.

Readings, discussions, and activities:

The primary activity in this course is reading research articles and engaging in online discussion. You will be asked to actively and enthusiastically engage in all online discussions and activities. Encourage others to share their ideas and clearly state your own—which should be grounded in your life experiences and the course readings. Do not be afraid to challenge your colleagues’ arguments. At the same time, do your best to make the learning environment comfortable and non-competitive for everyone.

Timeline and requirements:

Each module will involve 2-3 discussions and 1-2 activities. Your first post in each discussion is due by the first Sunday of the module (i.e., the end of the first week). By that time, you should have completed all readings for that module. During the second week, you should post replies daily or every-other-day at least. You should have a minimum of 4 posts in each discussion. Posting requirements for activities will vary depending on the activity. Please see the “Discussion guidelines and expectations” document in the “assignments and expectations” section of the course website.

Final project

There are two options for the final project.

Option 1: Responding to a set of qualifying exam-style questions that I will provide. This is a great option for folks enrolled in a full-time degree program—including those in the MA or PhD programs—who will have to pass a qualifying exam.

Option 2: Reading a teacher-oriented book about culturally relevant mathematics teaching and producing a critical and practical review. This is a great option for folks who are currently teaching—especially those in the MATSM program.

Timeline and requirements

You will be asked to turn-in a rough draft of your project approximately one month before the end of the semester. I will give you feedback on the rough draft, and your final draft will be due during final week. Please see the “Final project” document in the “assignments and expectations” section of the course website.

For PhD students: additional reading

PhD students will choose and read an additional book related to curriculum and culture. I will provide a list of books to choose from. I expect that this additional reading will provide more nuance on the course and will help you participate in academic activities and discussions related to curriculum and culture.

Timeline and requirements

I will provide a list of possible books during or before the third week of class. There is no formal requirement other than to read the book; I don't expect that I have to formally assess you in order to ensure that you complete it. That said, I imagine that the book will inform your reading responses and final project. I will be happy to meet to discuss the book as you read it.

Feedback and grading

At the end of each module I will give you qualitative feedback on your reading responses, with a particular focus on how you can improve them. I will also give you extensive feedback on your rough drafts of your final projects, again with a focus on how they can be improved.

Rather than assigning different grades for different qualities of work, my expectation is that everyone will get an "A." The catch is that you all have to do quality work. I will work with each of you to make sure you get there, and you will revise your work, possibly multiple times, until you do.

Administrative things

Website:

<http://umonline.umt.edu/>

This is a fully online course. There are no in-person or virtual class meetings. All of our work will take place on the course website.

Text: Collected readings, which will be posted in PDF form on the course website.

Policies

Communicating: Email is the best way to reach me. UM policy states that I must use your UM email account when I correspond with you. Please email me from your UM account—that makes it easy to follow the policy! Even if you don't, I still have to reply to your UM account.

Accommodations: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or 406.243.2243. I will work with you and Disability Services to provide an appropriate modification.

Academic honesty: All students need to be familiar with the Student Conduct Code. You can find it in the "A to Z Index" on the UM home page. All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or a disciplinary sanction by the University.